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DAVID HOSACK

David Hosack, as Mumford says, "did not belong to the Revolutionary doctors. He came to manhood after the war was over and is to be classed with the new and progressive generation." Yet, coming, as he does, between his preceptor Bard and his own pupil Francis, he lacked, in some measure, the scientific talent of the one and the literary facility of the other; and is now more to be esteemed as the solid, stable surgeon and practitioner, who performed important operations, edited medical journals, wrote profusely, worked hard for necessary reforms, cultivated botany and mineralogy, after the old 18th century tradition, and managed withal, to hold down as many different chairs in the medical faculty as did Nathan Smith at Dartmouth and Bowdoin.

Hosack, the son of a cadet of a Scotch family who had served as an artillery officer in the French war and later settled in America, was born at 44 Franklin Street, New York City, on August 3, 1769. On his mother's side he was of French and English extraction. Prior to entering Columbia College in 1786, he had received a good classical education from various tutors and in 1788, began to study medicine under the surgeon Richard Bayley, but took his actual A.B. degree at Princeton in 1789 and his medical degree at the Pennsylvania Medical College in 1791. Hosack's preceptor Bailey had granted to his pupils the use of a room in the New York Hospital (reopened 1791) for dissecting purposes, and in this way the young student became implicated in the riot known as the "Doctor's Mob." In the ensuing fracas, he was struck on the head by a stone, knocked

senseless and only saved by the kindness of a neighbor, who picked him up and took him home. Upon graduation, he married Catherine Warner, and commenced practice in Alexandria, Virginia, which then had hopes of becoming the capital of the United States. The experiment was brief. His practice soon grew to ample proportions, but the fees (at that time probably less than 25 cents each) amounted to nothing, and, as the prospects of the little town dwindled, he withdrew, in a year's time, to New York. Here he soon concluded that he would need better training to succeed, and leaving his wife and infant with his parents, he sailed for England, spending two years in London and Edinburgh. Upon the night of his arrival in Liverpool, he met Robert Burns at a social gathering and was soon taken up and made much of. He met or saw all the celebrities of the time, cultivated botany with Sir Joseph Banks and others, attended John Hunter's funeral, and communicated a paper to the Royal Society on the mechanism of vision, which was printed in its Transaction. On his voyage homeward in 1794, which lasted fifty-three days, typhus broke out on board, and Hosack was immediately launched into practice. One of his fellow travellers was a wealthy brother of Lord Ellenborough who was so impressed with Hosack's abilities that he introduced him to Alexander Hamilton and Aaron Burr, whose physician he became. In 1795, Hosack was offered the chair of botany (materia medica) in Columbia College and before the year's end he was busy with an epidemic of yellow fever in the city. It was at this time that he attracted the attention of Samuel Bard, who took him into partnership and to whose practice he eventually succeeded in 1798. Hosack's fortune was thus made at the start. Having lost his wife and child, he married in 1797, Mary Eddy by whom he had nine children. He became a kind of expert in the treatment of yellow fever, which he regarded as a contagious disease. Upon the foundation of the College of Physicians and Surgeons, in 1807, he was appointed professor of botany and materia medica, later succeeding to the chair of surgery and midwifery, and, upon the fusion of the College of Physicians and Surgeons with the Columbia College School

(1811) he succeeded to the chair of practice and clinical medicine, thus holding six different chairs in nineteen years (1807–26). In 1801 he founded the Elgin Botanical Garden at Hyde Park, which he eventually presented to the College. He was also instrumental in the foundation of the Humane Society, in the remodelling of the City Dispensary, and gave medical lectures to policemen. In 1810 he founded, with Dr. John W. Francis, the Medical and Philosophical Register (4 vols., 1810–14), one of the best medical journals of the period. In 1829 he retired from practice, living thereafter at his county house at Hyde Park. Just before his retirement from practice, Hosack married for a third time, and during his six remaining years, his new wife, an amiable widow, continued the tradition of his Saturday evening receptions, at which Irving, Cooper, Bryant, Halleck and other celebrities of the time were frequent guests. Harriet Martineau has left an enthusiastic description of this pleasant Hudson retreat. Like Samuel Bard, Hosack was a scientific farmer and stock raiser, occupied with these avocations until his death of apoplexy in December, 1835.

Hosack's reputation in medicine was based upon his success with the sudorific or mild treatment of yellow fever during the eight epidemics of 1795–8, 1803, 1805, 1819, 1822, upon his eighteenth century predilection for botany, his industry as writer and editor, and his innovations in surgery, notably the treatment of hydrocele by injection (1795), the first American ligation of the femoral artery for aneurism (1808) and his persistent advocacy of the open air treatment of wounds (1813). His Medical Essays (3 volumes, New York, 1824) include observations of the nature of contagion, on yellow fever, on foetal and infantile diseases, on angina pectoris, anthrax, elephantiasis, goitre, gout, tetanus, with biographies of Caspar Wistar, and Hugh Williamson, essays on ancient surgery, medical police, Ballston Spa, and suchlike; but nothing of outstanding importance save the Royal Society memoir on vision (1794) and the ligation of the femoral (1808). In the American Medical and Philosophical Register (1814–19), edited by Hosack and Francis, we find Hosack's classification of diseases, his history of the medical schools of

New York and Philadelphia, his observations on croup and hydrophobia, and such suggestive titles as fever in the drowned lands of Orange County, N. Y., and proofs of the contagion of yellow fever in the pure air of the country. That the two editors were informed with the historic spirit is evidence by an autograph letter of Franklin in facsimile and the editorial gossip, from which a picture of the medical culture of the time might be easily constructed. On the historic side, Hosack's best book is perhaps his "System of Practical Nosology" (1818), which, like Wunderlich's History of Medicine, gives the different classifications of diseases made by physicians of the 18th century, from Linnæus and Sauvages to Young and Pinel. His treatise on the Theory and Practice of Physic, edited by Ducachet, was published after his death, in 1838.

Sully's painting of Hosack shows a sturdy, vigorous, dark-eyed, blunt-nosed figure of Scottish type, whose lawn stock is folded in the fashion of the Geneva bands worn by physicians in the eighteenth century. His rugged feature tells something of the kindly hospitality and generous nature which distinguished alike his public benefactions, his silent acts of charity, and the conversaziones held every Saturday evening at his house. If he had latent in his composition anything of

"The thick Scots wit that flatters, scolds, defies,
The braw Scots tongue that fells you like a mace,"

it was not apparent in any known transaction of his life. As a teacher of medicine, he had a sonorous, vivacious, expressive delivery, which relieved the usual monotonies of medical lecturing, and so won his pupils. Three times in his life he took friendless young men into his home and educated them. All came up to expectations, one a voluntary martyr to the care of yellow fever patients in the epidemic of 1798, another, at first an indifferent student, later a clergyman of means; the third no less than Professor Delile, of the School of Medicine at Montpellier and Superintendent of its Jardin des Plantes. Hosack's son, Dr. Alexander Eddy Hosack (1805–71) whose memory is preserved in Hosack Hall in the Academy of Medicine, was a capable surgeon. This success with the young bespeaks the physician

of Osler type as plainly as the Elgin Botanic Garden, the Fever Hospital, the cabinet of minerals donated to Princeton College and the many other charitable and public-spirited actions which honored Hosack's professional career.

F. H. GARRISON

THE WESLEY M. CARPENTER LECTURE ON SEROLOGICAL REACTIONS IN SYPHILIS

BY THORWALD MADSEN

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(Delivered before The New York Academy of Medicine, October 16, 1924)

Among the many aids which laboratory investigations have of late years placed at the disposal of the doctor and the hygienist, the serodiagnostic reactions in syphilis are among the most prominent. This does not only apply to the specialist, the syphilologist, who both utilizes the reaction for a purely diagnostic purpose in recognizing the disease, and also to follow its further course and to obtain proofs of the result of the treatment. As a matter of fact, access to this reaction has been of greater importance to the clinic than perhaps is always realized.

The fact is that in various hospital sections the regular serodiagnostic examination of the blood for syphilis has been introduced between the routine examinations which are made of all patients; this is true for instance of maternity homes, children's homes, etc. It is therefore clear that it is of the greatest importance that access to having this important reaction made be arranged in the best possible manner. In this respect, however, the various countries have gone very differently to work. In most places access to these examinations has been allowed to arrange itself, and the result is that besides the excellent, first-class diagnosing stations of this kind, there are, unfortunately, many others which leave very much to be desired and where the reaction is proceeded with less conscientiously. It is therefore no wonder that complaints are heard time after time about

the uncertainty of the carrying out of the reaction. It happens frequently that the same blood sample, tested at different laboratories, gives a positive result at one place and a negative result at another, and neither is it a rare occurrence that the blood sample sent in to the same institution on several consecutive days comes back with a different reply every time.

In Denmark another way has been chosen, as right from the beginning all the serodiagnostic examinations have been centralized in one place, the State Serum Institute, where the examinations are made according to a uniform plan. In conformity with the Danish system for the combatting of venereal disease, which as a matter of fact has been in use for more than 150 years, but has been more clearly defined by later laws (the last in 1906), every Dane, whether rich or poor, has the right to free treatment for venereal disease and, in accordance with that system, the test for W. R. is also made without charge to the patient. For private patients who do not desire public free treatment, the reaction is made for a very low fee. The advantages of this centralization, the effect of which is that at the Serum Institute between 200 to 300 samples are examined daily, are that one avoids the uncertainty which may arise through the test being made at different places and by different methods. The circumstance that such a large number of tests are made daily ensures a degree of certainty that the reaction is made in a regular manner, as any deviation, for instance owing to peculiarities in the complement, is immediately observed in the great material. It furthermore ensures intimate co-operation with the hospitals, and thus one constantly has the opportunity of checking the reaction; this also gives the hospitals an opportunity of making extensive scientific investigations into serodiagnostic questions. Naturally, this centralisation on the other hand involves the Institute in considerable responsibility for the correct carrying out of the method.

Perhaps it may be of interest in this connection to mention that just this centralisation has made it possible to introduce a *registration of all syphilis patients*, for which a desire has often been expressed in various quarters, but which formerly met with great difficulty in practice.

As the American colleagues to whom I have had an opportunity of showing this registration have been extremely interested, I have thought that it may be of interest to those present here to see how it is carried out.

The principle which forms the foundation of this registration, and which has been described by Head Physician Jersild, is that every Danish patient with syphilis will, as a result of the free treatment, sooner or later have a serological test made of his blood; as a matter of fact this has proved to be correct, with so few exceptions that in this connection it is of no importance.

Particulars are required of seven different things on the form which accompanies the blood sample sent in:

(1) Sex of patient
(2) Year of birth
(3) Month " "
(4) Day " "
(5) The first letter of the surname, with the addition of the first letter in the surname if this should be changed by Royal Patent or by marriage
(6) Information as to when the syphilis was first diagnosed, and
(7) By whom.

It has been proved that this information is in reality sufficient in the great majority of cases to identify the patients and, what is of great importance in such a file, without knowing the patient's name. The last two particulars, time of infection and the name of the doctor consulted, are absolutely necessary, and as a rule the patients remember very clearly the often horrible and significant point of time when they first consulted the doctor about their disease. In fresh cases especially it is obvious that this information can be given with sufficiently great accuracy.

They are entered upon an index card in a file, on which there is also information as to which doctor or hospital section has sent in the blood test, the hospital section's journal number, the Serum Institute's serial number and the result of the serological reaction in W. R. and other tests. This registration has been

working since 1921 and has proved to answer its purpose very satisfactorily.

1901	VIII	11	C	former ♂	6/1.22	Hospital Vejle.	♀

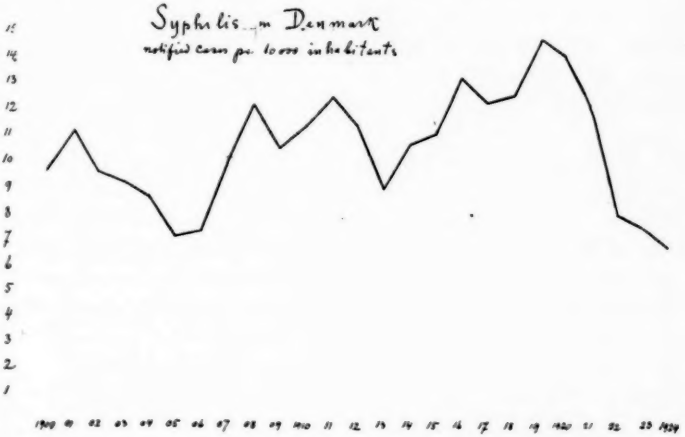
Year Aar	Month Md.	Day Dag	Hospital or Doctor	J. No.	W.R.	No.	Titration of W.R.	Titration of ♀
1922	I	7	Hospital. Vejle	14	Blod	38513	#	
-"-	IV	19	-"- Esbjerg	420	-"-	2542	+	
-"-	V	24	-"- -"-	540	-"-	8309	÷	
-"-	VII	3	Dr. Blem Lorup	324	-"-	13508	÷	
1923	VI	20	Hospital Copenh.	339	-"-	11954	+	1,5
-"-	VII	18	-"- -"-	442	-"-	19003	÷	÷
-"-	X	3	Policlinic -"-	15820	-"-	43081	÷	÷
-"-	XII	25	Dr. Jensen Kværper	679	-"-	32845	#	2,5
1924	I	2	Hospital Odense	32	-"-	39807	#	2,5
-"-	II	3	-"- -"-	-"-	-"-	45335	+	1,5
-"-	IV	18	Dr. Hansen Aarhus	120/24	-"-	62804	÷	÷

I may emphasize some of the advantages of the system. A doctor or hospital is able to keep track of the patient later on in life, which is otherwise difficult, for most often these patients belong to a class of vagabond tendencies. But on application to the registration bureau it is possible to state where the patient has from time to time been treated and the result of the serological reaction, without the bureau knowing anything about the name of the patient. This is often of importance to the treating doctor; if, for instance, it is desired to find out the results of a certain treatment, it is naturally important that one can to a certain degree find one's patients and find out the further course of the disease. This of course will be of particular importance in cases of late syphilitic diseases, such as general paralysis, tabes, etc.

The card shows clearly how a patient has gone from one doctor or hospital to another. Another advantage is that one has the possibility of obtaining statistics of cases of syphilis, which otherwise are very difficult to compile. One can for instance work out the annual number of cases of congenital syphilis and, on the whole, the number of fresh cases, even if these patients are, perhaps, not notified immediately after their infection, as at this juncture W. R. is by no means always taken, although somewhat later on W. R. will always be performed during the treatment.

The question of compiling reliable *statistics* is of course one of the burning questions in the combatting of this disease. On the other hand the difficulties have turned out to be exceedingly great.

In Denmark the notification of all cases of syphilis (although not nominative) has been compulsory ever since last century, and, based upon the *official* notifications, a graph of all syphilis cases has been plotted, as you will see:



We are, however, quite aware that these statistics suffer from important defects which one has tried to get over in a variety of ways. One of the greatest difficulties is the frequent double

notifications as a result of patients going from one doctor to another. Sometimes several doctors one after the other, and finally a hospital section, will notify the same patient, whereas on the other hand less careful doctors omit to notify them. On this point registration is an excellent means of getting reliable statistics.

I have dwelt upon this system of registration, because it is possible that the form can be used elsewhere, even in the United States, where the interest in vital statistics is so greatly developed.

With regard to the Danish statistics I must not omit to draw your attention to a point of considerable interest. You will see that the number of notified cases of syphilis after 1906 grows steadily, with a remission in 1913, after which it again rises during the war and reaches its culmination in 1919, whereafter it falls suddenly.

This agrees with what has been observed here and there in the belligerent States, but it is perhaps of some interest that a country like Denmark, which has not been in the war, has taken part in the general increase. It is presumed that the cause was to some extent the calling up of the defense force and partly a certain disturbance of moral ideas which at that time was traceable over Europe and which also infected our country, while another was particularly the largely increased incomes which at that time were spread over the community and thus, as so often before, were reflected in an increase of the cases of venereal disease.

It is interesting to see that this heavy increase has been succeeded by a sharp fall in the following years, and if I have attached importance to showing you this graph, it is because in many parts of the world, both in America and Europe, observers have been scared by the violent increase in the number of cases of venereal disease, and this has been the cause of forceful measures having been taken to fight this plague. In many places it has perhaps had this benefit, that it has shaken the medical authorities up to take energetic measures, which apparently have been crowned with success, for as you know the number of cases of venereal disease has fallen considerably during the past few

years. Naturally there will thus be an inclination on the part of the authorities to ascribe this decline to the measures they have taken.

Of course it will be of importance for the continued propaganda to be able to point to these results, but I cannot help pointing out that when one considers this phenomenon from a purely objective scientific point of view, one must be cautious about drawing conclusions as to the real cause of the decline.

If we look at the Danish graph it will be seen that the decline in Denmark has come *without* special new measures being introduced. Therefore when in other countries there has been a tendency to point to the decrease in the number of cases of syphilis as a proof of the utility of the measures taken, one should be a little cautious. However useful it might be to have arguments for a propaganda, one must, as scientific public health workers, remember that the course of epidemics has its own laws and is often only slightly affected by public measures.

The *serological methods* at present in use in the diagnosing of syphilis present a very motley picture, having regard to both the very different principles on which they are based and the manifold modifications in the methods which have gradually appeared. It is now possible to divide them into two main groups, as they base themselves upon complement fixation and the flocculation methods.

The *complement fixation methods* are the direct outcome of the method described by Wassermann, Neisser and Bruck in 1906, which was, as you know, based upon the phenomenon observed by Bordet-Gengou—the deviation of complement, and as a consequence the readings were taken by a hemolytic system. These methods again fall into two groups—those which work with active and with inactive sera.

In the latter the patient serum which is to be examined is inactivated by a half-hour's heating to 55°, whereby its complement is destroyed, and afterwards fresh guinea pigs' complement of a known strength is added. Various organ extracts are used as antigens; the official German directions demand the use of several extracts. A large number of the more exactly working

methods include a quantitative titration of the complement before it is used. Finally, some methods include a quantitative titration of the strength of the serum examined; this too is done in various ways: Boas, Thomsen, Kolmer, Müller and Renaux perform the titration with diminishing doses of serum, Calmette and Massol, Kaupp prefer varying quantities of complement for this.

In the "active" methods the fresh human blood's own content of complement and amboceptor are used, but as some blood specimens do not contain sufficient of these substances, which weaken rather quickly, foreign complement is now frequently added. The best known methods have been worked out by Stern, Noguchi, Müller, Landsteiner, Hecht-Weinberg, Latapie Mutermilch, Hecht-Gridwohl. It is maintained that the advantage of these methods is that, by leaving out the inactivating, one avoids weakening the sera and, as regards a number of the modifications, that time and money are saved in the preparation of complement and amboceptor.

The development of the *flocculation methods* began fairly early. In 1907 it was shown by Landsteiner, Müller and Pötzl, Levaditi and Yamanoughi and Porges, that the effective substance which reacted with syphilis serum was not present solely in organ extracts of luetic cases, but also in extracts of normal organs. Further, this effective substance was shown by them to be contained almost solely in the alcohol soluble fraction, its association therefore with a lipoidal substrat thus being demonstrated. In the same year Michaelis noted the formation of a visible precipitate when the extract of a luetic liver was brought in contact with a luetic serum. These observations gave the impetus to attempts to substitute for the complicated system of the Wassermann reaction a flocculation test involving two ingredients only. The further development through Porges, to some extent in collaboration with Meier, and later with Elias, Neubauer and Salomon, Sachs and Rondoni, Browning, Cruickshank and McKenzie, where the use of lecithin, sodium glycholat and, especially, cholesterin as an admixture to antigen was gradually tried, led to Herman and Perutz's reaction, probably

the first to attract the interest of the clinicians. However, none of these methods could compare with complement fixation methods, and it was only when Jacobsthal (who reverted to organ extract as antigen), Bruck and Hidaka, Hecht and others, Meinicke (1917) and Sachs and Georgi (1918), after meritorious work, came forward with their methods, that the flocculation tests seriously began to appear as competitors of the old Wassermann test.

The latest progress in this domain is the Sigma method proposed by Dreyer & Ward, 1921, who follow in principle the method of Sachs-Georgi, but with a more stable antigen and a refined technique involving the quantitative expression of all degrees of flocculation, so that the test can be so conducted that it can lend itself to accurate standardization in terms of standard units. In 1922 Kahn described a method based upon a similar principle which, owing to its easy accomplishment, has been widely used during the past year or two.

For these latter three methods patient serum is used, inactivated at 56° and, as antigen, extracts consisting of the non-aceton soluble part of calf or ox heart extracted by alcohol.

Verne's method described already in 1911, occupies a special position, being based upon a photometric reading of the opacity which arises by mixing a syphilis serum with a specially prepared horse heart extract. The method is characterized by the care with which the technical details are carried out, but for this reason craves a large and expensive instrumentarium.

Of quite recent date are the "Trübungs reactions" described by Meinicke, Sachs, and others, the principle of which is that by adding tolubalsam and similar substances to the organ extract the flocculation is accelerated, so that it appears clearly in the course of an hour, and in the form of great opacity in the positive sera. The advantages of these methods are their simplicity and rapidity. By Meinicke's method inactivating of sera is unnecessary, and the result can be seen even after the course of about two hours.

It is beyond the scope of my address to go into the details of the techniques of all the methods which are now in use—it would

fill a thick book; neither shall I touch upon the many complicated theoretical questions which are attached to these reactions. I will, however, go into a more practical question: how can one compare these methods with each other? Naturally, this question is of great interest to the large number of laboratories all over the world whose task it is to make sero-diagnostic examinations of this kind and who may find it difficult to choose between the many existing methods.

A proposal by the British Ministry of Health gave the impulse to the attempt to procure some agreement between the methods for serological tests in syphilis. The proposal was that the possibility should be created for free treatment in various seaports of seamen infected with venereal disease. It was a natural thought that the countries which had wholly or partly introduced such a treatment for seamen in their own ports (apart from England this has been the case for a long time in Denmark), should desire the introduction of similar measures in other parts of the world.

Looked at from a public health point of view, this is of course extremely desirable. We know that particularly seamen with venereal disease often, owing to lack of treatment, get their syphilis developed to a particularly malignant and infectious degree, and that when they come ashore they are most dangerous sources of infection. It would therefore be in the obvious interests of all parties if an international agreement could be made that such patients, immediately after they arrived at a seaport, regardless of their nationality, could be given a proper and good treatment. This idea has been taken up by the Office Internal d'Hygiène Publique in Paris, which has drawn up a proposal for an international convention on this question. The proposal has been accepted by a number of States; it would be very desirable that the U. S. A. also accepted it.

The idea was, then, that these seamen should be given a little book, in which all the details with regard to their disease and their treatment should be entered, including the result of the serological reaction, so that the treating doctors in different ports should always be informed about the curriculum of the patient.

Here one met with the difficulty that not only is the value of the serological test very different in the various ports, but the description of the reaction results varies a great deal. Descriptions are used promiscuously with words such as: strong, weak, negative, positive, or at other places a system of signs, for example a number of crosses; at other places the strength of the reaction is expressed in figures. Naturally it would be very difficult for a doctor to know what all these signs meant. There was thus the need of trying to obtain greater uniformity in this domain.

When after the war the League of Nations' Health Committee took up the idea of establishing an international standardization of different sera, particularly diphtheria and tetanus serum, it was not a long step to try whether it were not possible to obtain a greater uniformity in the serological methods that were in use. The question was taken up at the serological conference which was held in London in 1921 at the invitation of the British Ministry of Health. A number of scientists attended who had especially wide experience, both theoretical and practical, in this domain, and a working plan was agreed upon.

It was agreed that it would be extremely difficult to bring about greater uniformity in the methods which were based upon complement fixation, that is to say all the methods which are called W. R. in its proper sense. It was taken for granted that these methods in the various laboratories had gradually been developed to a high degree of perfection, differing in the hands of the various investigators, that one was satisfied with the method on which one worked and therefore would not be inclined to give it up for another complement fixation method if it did not offer particular, essential advantages. On the other hand, the newer precipitin and flocculation methods had attracted general attention, and here and there, in almost all the big institutions, these methods were being compared with the Wasserman method already in use. With regard to these flocculation methods there was a greater possibility of obtaining international agreement. They were everywhere carried out according to the instructions of the authors and had the advantage that they worked with a single extract, which was sent out from central

places, as a rule by the authors themselves. In this there was a possibility that one could obtain an international standardisation of these extracts in a manner which reminded one of that which was already being used, for instance in the standardisation of diphtheria serum, where standard sera from a few central laboratories such as the Ehrlich Institute at Frankfort, and the Public Health Laboratory at Washington, were sent out to all who wished to have their serum tested.

Thus it was agreed to make a comparison with the *flocculation methods* on the one side and *complement fixation methods* on the other side. A choice would then be made between the methods most commonly in use at the moment (1921) and most adaptable for a standardisation. The choice thus fell upon the *Sachs-Georgi* method, the *Meinicke method No. 3* and the *Sigma* method of Dreyer-Ward. It was of course not the intention to deny the deservingness of other methods to consideration, but as it was necessary, for practical reasons, to limit oneself to a restricted number of investigations in order not to extend the problem too widely, these methods were considered to be a suitable selection.

Vernes' method, which presented many points of interest, could not at that time be included, as the apparatus required for this is so expensive that a number of countries, especially at that time just after the war, would not be able to bear the necessary outlay.

The *Kahn* test was not published when these comparative experiments were started.

The institutions which took up this work were the Medical Research Council in England, which entrusted the investigations to Professor Harrison, expert to the British Ministry of Health, in collaboration with Prof. Dreyer of Oxford. Poland: the State Epidemiological Institute, Warsaw, Professor Hirschfeld. Belgium: the Pasteur Institute, Brussels, whose principal, Prof. Bordet, entrusted the work to the sub-director, Prof. Renaux. The German Institute for Standardization: the Institute of Experimental Pathology at Frankfort, Prof. Kolle; the Cancer Institute, Heidelberg, Prof. Sachs. Austria: Prof. Rudolph Müller's clinic at Vienna.

Thus they were all institutions and investigators who had especial knowledge of these reactions. It was very regrettable that the circumstances did not permit of the inclusion of some investigators from America in this work, but the distance was too great, especially when it was a question of exchanging specimens for investigation.

It was furthermore decided that the State Serum Institute at Copenhagen should act as the centre for these investigations and act as a connecting link between the laboratories in the forwarding of specimens, etc.

The extract which was to be used in the flocculation method was to be supplied direct by the authors and, through the central laboratory at Copenhagen, forwarded to the various investigating laboratories. This was for the purpose of excluding one of the sources of error which had formerly been so fatal, *i.e.*, the antigens were different.

All reports on tests were to include information as to:

(a) Reliability of the method.
(b) Complexity of technique.
(c) Relative consumption of time by the method.
(d) Expense.
(e) Ease and accuracy with which the reaction can be observed.
(f) Percentage of dubious results.
(g) The extent to which the method yields quantitative results.

The various institutions were thus brought into connection with each other; extracts and information as to technical details were exchanged, and work was ardently commenced, so that at the time of the second International Conference, which was held the following year (November, 1922), at the Pasteur Institute in Paris, a large number of detailed reports were to hand from the various institutes.

This work, however, did not give any clear result; of the nine reports it appeared that most of the investigators had some good results, others especially good results with the flocculation reac-

tions as compared with W. R., but none of them to such a degree that they considered they could give up W. R. in favor of the flocculation methods. Other investigators were still of the opinion that W. R. was superior to the flocculation test. This conference was of great utility, for it gave those present an opportunity after about twelve months' intensive work in the same field to exchange views on technical experiences.

It was agreed that it was necessary to continue the work, for one reason because as a result of the reports and the conference it was clear that in spite of all there was no exact uniformity in the manner in which the reactions had been made. It was thus agreed that the tests should be continued with certain technical changes and improvements; the State Serum Institute in Copenhagen should also endeavor to collect specimens of series of syphilis serum and non-syphilis serum. These specimens were to be divided into five equal portions, one of which was to be sent to each of the following laboratories:

Professor Müller
" Bordet
" Wassermann
" Harrison
" Hirzfeld

To obtain as great a concordance as possible, all specimens from the same patient were to be examined on the same day in all the institutions mentioned. In this manner it was hoped to obtain a comparison as to how W. R., carried out with the same blood but in different laboratories, would turn out, for it had gradually become clear how extraordinarily difficult it is to get these sensitive reactions carried out in exactly the same manner in different places, even if they were carried out by the most competent persons.

This had already been apparent at the conference in Paris, and was confirmed by a journey undertaken by one of my assistants shortly afterwards to a number of the participating laboratories. On going from one place to another it was ascertained that there was a number of variations in the techniques of the

flocculation reactions—variations which were apparently small and insignificant, but which were in reality absolutely fundamental, a matter which I will revert to later. On this occasion it was possible to gradually bring these methods into considerably more uniformity than was previously the case.

It also turned out with the blood specimens which were sent out from Copenhagen to various laboratories that the replies were extremely different, not alone as regards W. R. itself, but also with regard to the three flocculation tests which were investigated. Very noticeable were the differences which appeared by the method which was expressed quantitatively in figures—the Sigma reaction, and Table 1 shows this fully. In the tables are first shown the serial number of the blood specimen, then under the heading "Bordet-Wassermann" is shown the result of the investigation by the various laboratories, thereafter in a similar manner Sachs-Georgi, then Sigma, and finally the Meinicke-Trübing reaction.

In the columns are given various signs which mean:

‡ strong positive	= > 3.8	Sigma units
+ positive	= 1.5–3.9	"
± doubtful	= 1.0–1.4	"
— negative	= < 1.	"
0 = reaction not made.		

Under the heading "Diagnosis" is given—the stage of syphilis in question, primary, secondary, tertiary, then syphilis latens, congenita, dementia paralytica. A point · shows to which column the diagnoses of the patients is to be referred; a "t" which is added (·t) means "treated." Under the heading "Control" are shown control cases.

After this it was obvious that, despite the preceding close collaboration between the investigators, there must still be very considerable differences present. As far as the Bordet-Wassermann reactions proper are concerned this was, of course, not remarkable. These methods were in themselves different and were to be expected to give varying results; but as to the flocculation reactions, everything had been made that could be done to get them

Tab. 1.

Tab. 1.

No.	B. W. Harrison	B. W. Hirschf.	B. W. Madsen	B. W. Møller	B. W. Renaux	B. W. v. Wassermann	S. G. Harrison	S. G. Hirschf.	S. G. Madsen	S. G. Møller	S. G. Renaux	Σ Harrison	Σ Hirschf.	Σ Madsen	Σ Møller	Σ Renaux	M. T. R. Hirschf.	M. T. R. Madsen	M. T. R. Møller	Diagnosis: Syphilis I	Syphilis II	Syphilis III	Syphilis Lat.	Syphilis Cong.	Syphilis D. p.	Diagnosis: Control.
1	±	+	±	±	±	±	0	±	±	0	0	0	0	3	0	0	0	±	0	.	.	.	●	.	.	.
2	±	±	±	±	±	±	0	±	±	0	0	0	16.5	2.2	0	0	0	±	0	.	.	.	●	.	.	.
3	±	±	±	±	±	±	0	±	±	0	0	0	66	72	0	0	0	±	0	.	.	.	●	.	.	.
4	±	±	±	±	±	±	0	±	±	0	0	0	6	1.5	0	0	0	±	0	.	.	.	●	.	.	.
5	±	±	±	±	±	±	0	±	±	0	0	0	8	3.6	0	0	0	±	0	.	.	.	●	.	.	.
6	±	±	±	±	±	±	±	±	±	±	±	1	1	1	1	1	1	+	0	.	.	.	.	.	.	Generrh.
7	±	±	±	±	±	±	±	±	±	±	±	1	1	1	1	1	1	±	0	.	.	.	.	.	.	Generrh.
8	±	±	±	±	±	±	±	±	±	±	±	3.2	7	1.5	+	2.5	0	0	0	.	●	.	.	.	.	.
9	±	±	±	±	±	±	±	±	±	±	±	13.7	16.6	6	+	34	0	0	0	.	●	.	.	.	.	.
10	±	±	±	±	±	±	±	±	±	±	±	13.7	13.7	6	+	34	0	0	0	.	●	.	.	.	.	.
11	±	±	±	±	±	±	±	±	±	±	±	>54	50	18	+	34	0	0	0	.	●	.	.	.	.	.
12	±	±	±	±	±	±	±	±	±	±	±	>54	150	70	+	>54	±	±	±	.	.	.	●	.	.	.
13	±	±	±	±	±	±	0	0	0	0	0	1	1	1	1	1	1	1	1	.	.	.	●	.	.	.
14	±	±	±	±	±	±	0	0	0	0	0	6.8	8.7	2.2	+	13.4	±	±	±	.	.	.	.	.	.	Sanus
15	±	±	±	±	±	±	0	0	0	0	0	1	1	1	1	1	1	±	1	.	.	.	.	.	.	Sanus
16	±	±	±	±	±	±	0	0	0	0	0	1	2.1	1	1	1	1	±	1	.	.	.	.	.	.	Sanus
17	±	±	±	±	±	±	0	0	0	0	0	1	1	1	1	1	1	±	1	.	.	.	.	.	.	Sanus
18	±	±	±	±	±	±	0	0	0	0	0	1	1	1	1	2.8	1	+	1	.	.	.	.	.	.	Sanus
19	±	±	±	±	±	±	0	0	0	0	0	1	2.3	1	1	34	1	1	1	●	.	.	.	.	.	.
20	±	±	±	±	±	±	0	±	±	0	±	>54	77	12	+	>54	±	±	±	.	●	.	.	●	.	.
21	±	±	±	±	±	±	0	±	±	0	±	6.8	5.2	1.8	+	13.4	±	±	±	.	.	●	.	.	.	.
22	±	±	±	±	±	±	0	±	±	0	±	1	1.3	1	+	1	±	±	±	.	●	.	.	.	.	.
23	±	±	±	±	±	±	0	±	±	0	±	10.2	17.1	8	+	>54	±	±	±	.	●	.	.	.	.	.
24	±	±	±	±	±	±	0	±	±	0	±	>54	94	44	+	>54	±	±	±	.	●	.	.	.	.	.
25	±	±	±	±	±	±	0	±	±	0	±	>44	46	10	+	>44	±	±	±	.	.	.	.	●	.	.
26	±	±	±	±	±	±	0	±	±	0	±	>54	117	44	+	>54	±	±	±	.	●	.	.	.	.	.
27	±	±	±	±	±	±	0	±	±	0	±	1	1	1	1	1	1	±	1	.	.	.	.	.	.	Generrh.
28	0	±	±	+	±	±	0	±	±	0	±	0	1	1	1	1	1	±	1	.	.	.	.	.	.	Generrh.
29	±	±	±	±	±	±	±	±	±	±	±	6.8	5.9	3	+	27	±	±	±	.	.	●	.	.	.	.
30	±	±	±	±	±	±	±	±	±	±	±	20.6	30	10	+	>54	±	±	+	.	●	.	.	●	.	.
31	±	±	±	±	±	±	±	±	±	±	±	18.1	16.2	3	+	34	±	±	±	.	.	.	.	.	.	.
32	±	±	±	±	±	±	±	±	±	±	±	1	1	1	1	1	1	±	1	.	.	.	.	.	.	Generrh.
33	±	±	±	±	±	±	±	±	±	±	±	44.5	92	25	+	>54	±	±	±	.	●	.	.	.	.	.
34	±	±	±	±	±	±	±	±	±	±	±	1	1	1	1	1	1	±	1	.	.	.	.	.	.	Generrh.
35	±	±	±	±	±	±	±	±	±	±	±	1	1	1	1	1	1	±	1	.	.	.	.	.	.	Generrh.

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identical and yet, in spite of this, the results were not satisfactory. It was therefore decided to see whether it should not be possible to obtain the uniformity aimed at.

In order to determine the cause of these divergences the Health Committee of the League of Nations decided to convene a *Conference* at which the investigators were to make simultaneous tests of the same sera by the different methods. This Conference was held in the State Serum Institute of Copenhagen from November 19th to December 3rd, 1923. The following participated in the examination of the sera:

Dr. Harrison, Dr. Wyler } Medical Research Council, London.
Professor Hirzfeld, State Institute of Hygiene, Warsaw.
Dr. Madsen, Dr. Mörch } State Serum Institute, Copenhagen.
Dr. Meinicke, Hagen, Germany.
Professor Müller, Vienna.
Dr. Mutermilch, Inst. Pasteur, Paris.
Professor Otto, Kochs Institut, Berlin.
Dr. Renaux, Inst. Pasteur, Brussels.
Professor Sachs, Cancer Research Institute, Heidelberg.

Some others participated, *e.g.*, from U. S. A.: Dr. Armstrong and Dr. Dyer, Public Health Service; Prof. Forssman from Lund, Sweden, and Prof. Petragnani from Firenze.

During this conference, 536 sera were tested during ten working days, that is to say, on an average 50 every day. The samples of serum, which were supplied by the Copenhagen hospitals, were preferably drawn from syphilitic patients, both treated and untreated, in different stages of the disease. No importance was attached to obtaining samples from patients with syphilis in the second stage, as these, as you know, react with all tests.

As it was the intention to weigh the values of the various methods against each other, it was in fact important to get samples from doubtful cases, and first and foremost a good control material, with special reference to conditions which are suspected to give unspecific results by some methods, as for instance tuberculosis, tumour and pregnancy.

Immediately after the bleeding of the patient, the sample was sent to the institute and examined the following day. As the quantity of some of this sera was rather small, such samples could not be tested by all the investigators with each of the methods in question. Only 11 cerebro-spinal fluids could be examined, as it was impossible to obtain sufficient material for all nine investigators in more than this number of cases.

The technique used for the different tests at this conference was the following:

For the workers who made W. R. with inactivated serum:

Dr. Harrison and Müller: his own described technique.

Dr. Hirschfeld: McIntosh & Fildes technique.

Dr. Madsen: Thomsen & Boas technique.

Dr. Renaux: the method described by Bordet & Rouleng.

Otto & Sachs: principally the technique prescribed by the German "Reichsvorschrift" with various antigens.

Whilst all these investigators worked with inactivated serum, Dr. Mutermilch used the technique which is the Pasteur Institute's official method and which works with active human serum. It is based upon the Bauer-Hecht procedure, modified by Levaditi and Latapie, Weinberg, Mutermilch and Latapie.

(2) The flocculation methods which were used were those of Sachs-Georgi, Dreyer-Ward (Sigma method), Meinicke's three modifications and Meinicke's "Trübungs reaction."

The technique was that described by the author. One had the advantage that two of these were present and made their own reactions.

The work done at this conference was extremely intensive. Each serum was subjected to in all 26 to 30 tests with various methods and different investigators. I do not suppose serum has ever been subjected to a more thorough serological examination. The clinical diagnosis which corresponded to the blood sample was not communicated to the investigator until he had handed in the result of the serologic test. Table 2 gives an idea of how the work was tabulated.

A number of cases, in which the results presented points of special interest, were re-tested, some of them during the conference, some of them afterwards.

| No. | B. W. | | | | | | | S. G. | | | | | | | Z | | | D. M. | | M. T. B. | | | | | Diagnosis | | | | | | |

SUMMARY OF CLINICAL DIAGNOSES

Total Syphilis 190								Total controls 345			
I	II	III	lat.	cong.	tabes	D.p.	?	Tub.	Pregn.	Tum.	?
19	42	37	40	3	3	34	12	90	103	14	138

Even if the material is too small to permit a thorough statistical treatment of the results of the tests, Table 3 gives an idea how the different methods compare in the hands of the different workers.

		Hanes-son	Hirsch-feld	Madsen	Meinicke	Müller	Otto	Romans	Sachs	Mutermilch
W.R.	Syph. % pos	62	57	44		58	50	56	47	63
	-"- % ±	4	2,7	6,8		2,7	6,5	4,4	6,5	2,7
	Contr. % pos	0	0,6	0		0	0	0,6	0,8	2,2
	-"- % ±	4,9	1,6	1,8		3	1,9	1	0,8	1,9
S.G.	Syph. % pos	64	52	50		50	52	44	55	52
	-"- % ±	1,3	5,5	7,4		3	6,7	7,5	3,3	3,4
	Contr. % pos	0	0,3	0,9		0,3	0,5	0,4	0,6	0
	-"- % ±	0,8	1,6	5,1		0	1,6	0,7	0,6	0
Σ (Sigma)	Syph. % pos	46	42	51				40	50	
	-"- % ±	1,2	0,6	1				11	12,5	
	Contr. % pos	0	0	0				0,3	0	
	-"- % ±	1,8	0	1,2				0	4,7	
M.T.R.	Syph. % pos		51	49	47	54	46			
	-"- % ±		4,7	3,7	9,9	4,8	5,6			
	Contr. % pos		0	2,1	1,3	1,3	1,0			
	-"- % ±		0,5	2,4	2,3	1,7	1,7			

At the conference the following conclusions were approved:

I. BORDET-WASSERMANN TEST

(a) With Inactivated Serum.

Positive results: The Bordet-Wassermann test yielded in this Conference the uniformly greatest number of positive reactions in known cases of syphilis.

Specificity: With regard to specificity, no unspecific results whatever were obtained by certain of the investigators and, on

the whole, results which were possibly unspecific occurred very rarely.

Extracts: The results obtained by those workers who employed several extracts were not better than those using one only. It is concluded that the preparations of the extracts and the determination of the precise dose of complement to be used are of at least as great importance as the use of multiple extracts. The best results were obtained with heart extracts.

(b) **With Active Serum** (technique employed in the Pasteur Institute in Paris).

Positive results: The reaction yielded a higher number of positive results in known cases of syphilis than any of the methods used by the other workers.

Specificity: At the same time, the suspicion is raised that a larger number of unspecific results are obtained by this than by the other methods.

These conclusions need confirmation and further investigation especially with sera which have been withdrawn some time before test.

II. Flocculation Tests.

1. Comparison of Results of Flocculation Tests With Those Obtained by the Bordet-Wassermann Test.

The work of the Conference has shown that:

The Flocculation tests cannot at present replace the Bordet-Wassermann test. It must, however, be emphasized that, in the course of the present Conference, they have yielded positive results on a certain number of cases of syphilis in which the Bordet-Wassermann reaction was negative, although the latter test showed itself on the whole to be more sensitive.

It is therefore recommended that the Bordet-Wassermann test and the Flocculation tests be carried out side by side, since by such a combination the best results have been obtained.

2. **Comparison of the Several Flocculation Tests.**

(a) *Meinicke's D.M.*

According to the results of the various investigators both before and during the Copenhagen Conference, the D. M. with very few exceptions showed specific results. They were, however, for the most part on the weak side. The weaker results were more marked at the Conference work than in the previous tests.

Further consideration of the D. M. test can now be omitted since the author himself has replaced it by his "Trübungsreaktion," the extract for which is a modification of that used in the D. M.

(b) and (c) *Sachs-Georgi Test and Sigma Test.*

As to the other Flocculation tests which might be useful for routine purposes, the original reaction of Sachs-Georgi has yielded during this Conference more positive results in known cases of syphilis than the Sigma method. But conformably with this greater sensitiveness, its specificity was found to be slightly impaired. Since, however, these findings do not agree with those which have been obtained in certain laboratories, it is advisable to make further investigation in order to discover which of these two recommendable methods gives the better results.

(d) *Meinicke Trübungsreaktion* (*M. T. R.*)

Compared with the Sachs-Georgi Reaktion, the M. T. R. carried out with 3% saline yielded corresponding results, both as regards specificity and sensitiveness in cases of known syphilis. Both reactions proved somewhat less sensitive than the Bordet-Wassermann test. On the other hand, the Meinicke Trübungsreaktion, like the Sachs-Georgi and the Sigma reaction, yielded in a small number of cases of syphilis more positive results than the Bordet-Wassermann reaction. It is therefore advisable to carry out the M. T. R. in conjunction with the Bordet-Wassermann and the flocculation reactions considered above, particularly so because of the simplicity of this method.

Thus the hope of some investigators, that the flocculation methods might replace the Bordet-Wassermann test, was disap-

pointed. As regards the Sigma reaction this created considerable surprise, as some of the members of the Conference had already had opportunity to determine the absolute superiority of this test over the Wassermann method used by them. For that reason my assistant, *I. R. Mørch,* tried to clear up what could be the cause, especially by examining to what degree the Sigma test is dependent upon various small details. He found in fact that this was the case p. ex.:

Various specimens of *cholesterins,* even from the same makers, are not identical with regard to their ability to strengthen the S. R.

Inactivation of sera for the S. R. in tubes *closed* with rubber or cork or sealed in the flame may sometimes bring about some weakening of the reaction. In the case of the S.–G. R. this could not be established.

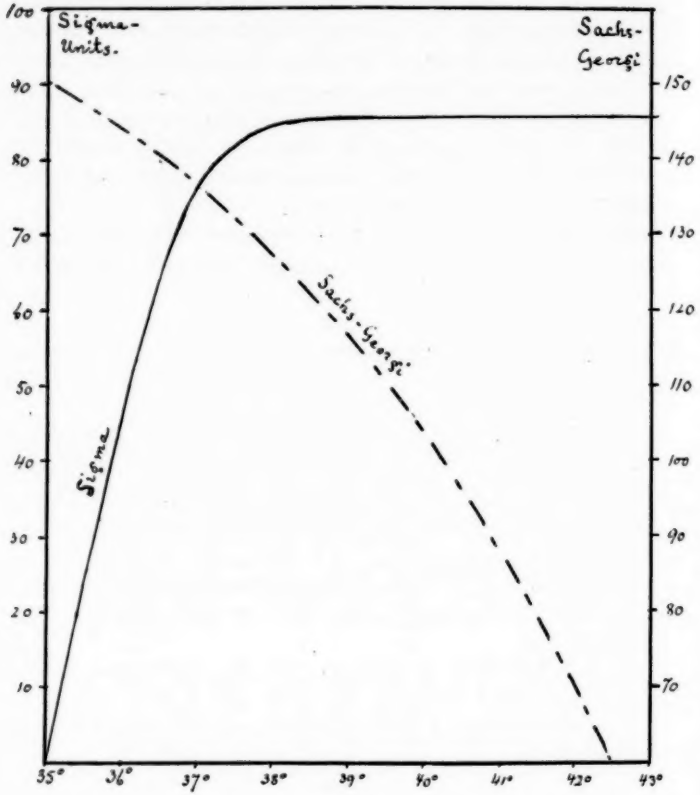
Even slight variations in the *temperature* at which *inactivation* is carried out will influence the strength of both the S. R. and the S.–G. R. The rate of the weakening of the strength of the serum is greatly increased for every degree that the temperature is raised above 54° C.

When the S. R. is carried out in a *closed* water bath, a much weaker reaction is obtained than when an open water bath is used.

It is of the greatest importance that the adjustment of the *water-level* in the water-bath should be exactly adhered to.

A number of different factors can give rise to the formation of inhibition zones.

It has not hitherto been realised that fluctuations in the *temperature,* at which the *Sigma* and the *Sachs-Georgi* tests are made, have a very great influence. This appears from fig. 2, which indicates the changes of these two sets with temperatures between 35° and 43° C. The titer of the Sigma reaction increases rapidly between 35° and 37° but it is only very slightly affected by temperatures above 38°. In contrast to the Sigma reaction the Sachs-Georgi reaction goes well at 35°; if the temperature is raised this causes a considerable decrease in the strength of the reaction, and this grows with increasing rapidity with every degree by which the temperature rises.



The Sigma reaction and the Sachs-Georgi reaction are thus both influenced by fluctuation in the temperature, but in diametrically opposite directions, as it is clearly shown by the graph.

If I have dwelt rather long upon a survey of these details in some flocculation reactions, it is not because I imagine those present have very much interest in the technical details, but because they show how difficult these methods are to work with, and how sensitive they are to all kinds of factors, even those

which, beforehand, one had not expected to be so. One is often inclined to regard these flocculation methods as being particularly simple, and in that see an advantage over the complement fixation methods. Even if the reaction thus comprises fewer factors and it is very much less expensive than the others, it is a mistake to think that it is a method that anyone can carry out. On the contrary. These methods ought to be placed solely in the hands of persons who know what they are dealing with and who have the necessary chemical and physical training.

These methods should also be carried out under the constant control of the clinician, that is to say, only where the diagnosing station is in close touch with clinics and hospitals, so that he can be warned if divergences should arise. Accordingly, the following resolution was adopted at the Copenhagen Conference:

"The several methods for the serological diagnosis of syphilis should only be carried out in laboratories specially adapted to the purpose and by experienced workers, as it has been shown that, even under the favourable conditions of the Conference, individual investigators exceptionally obtained incorrect results with one or the other method. Such results were only recognisable through the great number of controls and render it strongly advisable continually to employ numerous control sera. As, however, the final verdict in regard to serological methods is based on clinical investigation, it is to be emphasised that pathologists who are concerned in such investigations should work in collaboration with the clinician."

In conclusion I will bring to your notice the procedure which was established by the Copenhagen Conference. This is the first time an attempt has been made to establish a really working conference, to gather the most competent people together to work on the same material. Apart from the personal significance such a gathering has for those attending, it almost seems to be the only means by which a comparison can be had between various, subtle methods as the serological reactions. Experience from this Conference seems to confirm this. Alone the explanation of such an apparent trifle as that *most* of the agglutinoscopes used were had for reading, explains several divergences

in the Sachs-Georgi reaction. The same thing applies to a large number of small technical details which are difficult to describe, even in a careful instruction. Such a Conference, where the work of course easily becomes forced, is not particularly suitable for really theoretical investigations, but a lot of experience can be gained and impulses received which become the starting point for scientific research.

But a lot of time is wasted by the fact that here and there in the many laboratories which occupy themselves with serodiagnosis of syphilis, a great amount of labour is spent on investigating and comparing all the new methods which from time to time appear. A greater part of this work of control is doubtless without great value. On the other hand the medical world, of course, has the right to know which of the existing and the new methods are to be preferred. Therefore it is important that a number of large, well-equipped institutes, with the necessary touch with the clinician, keep on taking these methods up for critical examination and, while doing so, keep in contact with each other. It is an attempt to create such an organisation that the League of Nation's Health Committee has made, and I hope that investigators from the United States will join in this team work.

PUBLIC HEALTH COMMITTEE

The Nursing Situation

One of the important phases of the nursing situation, insofar at least as New York City is concerned, is the shortage of properly qualified nurses for bedside duty. The roots of this shortage touch every phase of the nursing problem. A large proportion of the graduates of nursing schools do not want to do private duty nursing and instead take up work in the fields of public health, industrial medicine, administration and education. Positions in these fields offer regular employment, a definite income, shorter hours of work as well as opportunity for advancement. There are other causes for the shortage of bedside nurses, one of which is the employment of trained nurses when the condition of the patient does not warrant the full-time service of a

nurse, or for chronic invalids where a trained attendant would do as well.

The difficulties which some hospitals experience in getting an adequate supply of pupil nurses as well as graduate nurses are often laid at the door of the State Department of Education. It has been repeatedly stated that the exactions of the Department with regard to the curriculum of the training schools are too severe. Some believe that the course of training could be made much simpler than it is at the present time, and that the provision of the law concerning the entrance requirement of one year high school education should be changed, permitting women with grammar school education to enter training schools. The wisdom of this is questioned by many on various grounds.

The State Department of Education is likewise often criticized for the ruling, which makes it impossible for a graduate nurse of another state to take a licensing examination in New York, if her school was not on the approved list of the New York State Department of Education at the time of her graduation. The Department is furthermore criticized for insisting that the graduate nurses in a hospital with a training school must be licensed in New York State, thus making the requirements with regard to nurses stricter than in the case of interns.

As a result of the shortage of nurses in New York City, a great deal of domiciliary nursing is done by women who are not graduates of recognized training schools and who are not required to be licensed in order to nurse the sick for compensation. The commercial registries for nurses have a large number of such women on their rolls. These women frequently exact the same compensation as graduate nurses, and in many instances the family of the patient does not know anything about the qualifications of the nurse whom they engage. The cost of nursing care is a matter of serious concern to people of moderate means.

The law of this State recognizes the so-called trained attendant. Her preliminary education is specified as that of a grammar school, and her training period is of nine months' duration, including six months of practical experience. For various reasons, very few institutions have availed themselves of this opportunity to train attendants.

The State also recognizes the graduates of state hospitals for the insane, who are called "trained nurses." Pointing to this precedent established by the present Nursing Act, the tuberculosis sanatoria are anxious to receive similar recognition for the graduates of their schools, who are practically the only type of nurse willing and with the necessary experience to nurse the tuberculous sick.

The nursing situation calls for a statesmanlike handling of the numerous aspects which it presents. The interests of the sick and of the community, the economic interests of the nurses, the interests of the physicians in securing the proper bedside care for their patients, and of the interests of public health and of the hospitals, as well as those of nurse training must be considered, and ways and means found for an adequate solution of this problem. The basic requirement is the possession of full and accurate data bearing on the subject.

The Public Health Committee has been interested for many years in the nursing situation and has from time to time offered suggestions and recommendations. During the last few months several conferences were held with interested groups, with a view of thrashing out the situation and arriving at the fundamental facts relating to the problem. E. H. L–C.

HOSACK HALL AND THE HOSACK HOSPITAL BED FOR SICK AND NEEDY PHYSICIANS

The auditorium or principal assembly room of the Academy in which the stated and other large or general meetings are held, was provided for in the will of Celine B. Hosack, widow of Alexander E. Hosack. In the new building of the Academy the auditorium also will be known as Hosack Hall. The terms of the bequest are as follows:

"I do give, devise and bequeath unto the Society or Corporation known as 'The New York Academy of Medicine' the sum of Seventy Thousand Dollars, payable within one year after my decease, which it is my will and desire shall be devoted or applied by the Board of Trustees of the said Society or Corporation to the purchase or erection of a library building or lecture

room, or some other useful and suitable building adapted to the purposes of the said Society, which in memory of my dear husband Alexander E. Hosack shall in some appropriate manner be designed with and known by his name forever.

" If the said sum of Seventy Thousand Dollars shall be insufficient to defray the entire expense of constructing the whole of any building to the erection of which the Board of Trustees of the said Society may deem it proper to apply the money, then it shall either be allowed to accumulate at interest until the amount shall be sufficient for the purpose or it may be used and applied to the construction of any separate part of the building or any particular room or suite of rooms or any wing or addition to any building belonging to the Society and devoted to the objects for which the said Society was incorporated which can be separately distinguished from the other parts of the same building so as to be dedicated and designated in some suitable manner as a monument in memory of my husband."

The last will and testament of Mrs. Hosack also provided for the procuring, furnishing and keeping in perpetuity of one free bed in the Roosevelt Hospital, to be known as the "Hosack Bed." The conditions are that the bed shall be "occupied from time to time by such sick and needy physicians as may for that purpose be named or designated by President and Treasurer for the time being of The New York Academy of Medicine."

This provision in the will was carried out in 1887.

PORTRAITS OF PHYSICIANS

The collection of portraits of physicians presented to the Academy by Dr. Charles L. Dana has recently been considerably augmented, as on May 27 Dr. Dana added the following portraits to the collection:

Govard Bidloo (engraving)
Joseph Black (engraving)
J. F. Blumenbach (engraving)
Hermann Boerhaave (mezzotint)
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DEATHS OF FELLOWS OF THE ACADEMY

John Addison Fordyce, A.B., A.M., M.D., Ph.D.

Professor John Addison Fordyce, eminent American dermatologist and syphilologist, died June 4, 1925, two weeks subsequent to an appendectomy, in his 67th year.

Dr. Fordyce was born in Ohio on February 16, 1858. His father, John Fordyce, was born in Pennsylvania, of Scotch ancestors, but he spent most of his life in Ohio where he engaged in extensive business enterprises. His mother, Mary A. Houseman Fordyce, was born in Pennsylvania, of German ancestors. Dr. Fordyce is survived by Mrs. Fordyce, *née* Alice Dean Smith, of New York City, whom he married in 1886, and by their son, Dr. Addison Fordyce, and their daughter, Emma Fordyce Swift, wife of Dr. Homer Swift, of the Rockefeller Institute.

After receiving a common school education, John Addison Fordyce entered Adrian College, Adrian, Mich., where he received the degree of A.B. in 1878, that of A.M. in 1889, and the honorary Ph.D. in 1901. He graduated from the Northwestern University Medical College in 1881, immediately after which he served as intern in the Cook County Hospital (Chicago) until 1883. From this date until 1886 he resided in Hot Springs, Ark., during which time he practiced general medicine and devoted special attention to surgery. The next three years (1886 to 1888, inclusive) were spent in Vienna, Berlin and Paris, studying dermatology, pathology and bacteriology under such masters as Koch, Lassar, Behrend, Kaposi, Fournier, Besnier, Vidal, etc. The degree of M.D. was received from the University of Berlin in 1888.

Dr. Fordyce returned to New York City in 1888, where he at once began the practice of dermatology and genito-urinary diseases. Education, training, common sense, vision, perseverance, unusual ability, hard work, and personality permitted Dr. Fordyce to very quickly rise to the top of his chosen field in this country, and it was not long before he acquired an international reputation. He was Instructor and Lecturer in Dermatology at the New York Polyclinic from 1889 to 1893. In 1889 he became associated with Prince Albert Morrow as Editor of the Journal of Cutaneous and Genito-Urinary Diseases. This association was terminated in 1892, after which he was sole Editor for a few years, when James C. Johnston became Associate Editor. He resigned as Editor in 1897, but continued to serve on an Editorial Board (Journal of Cutaneous Diseases and Syphilis) until a very few years ago.

In 1893 Dr. Fordyce was appointed Professor of Dermatology in the Bellevue Hospital Medical College. He received the Chair of Dermatology and Syphilology in the New York University and Bellevue Hospital Medical College in 1898, from which position he resigned in 1912 to accept the Chair of Dermatology and Syphilology at the College of Physicians and Surgeons, Columbia University, which position he held until his death.

Dr. Fordyce was Visiting Dermatologist to the City Hospital from 1893 until 1925. He was Consulting Dermatologist to the Presbyterian Hospital, Fifth Avenue Hospital, Woman's Hospital, New York Infirmary for Women and Children, and the Neurological Institute. He was Secretary of the American Association of Genito-Urinary Surgeons from 1889 to 1892; President of the American Dermatological Association in 1899; Chairman of the Dermatological Section of the American Medical Association in 1903; Secretary-General of the Sixth International Congress of Dermatology in 1907; President of the New York Dermatological Society; Chairman of the Dermatological Section of the New York Academy of Medicine, etc. At the time of his death he was an active member of all the important dermatological societies of this country. He was an honorary member of the Italian, German and English dermatological societies, and corresponding member of the French and Danish dermatological societies. He was an associate member of the Association for Cancer Research, etc.

Dr. Fordyce was a prolific writer of invaluable articles in his chosen field, his literary contributions numbering well over one hundred, to all of which he gave much skill, time, research and money.

That he was a great teacher is shown by the large number of eminent dermatologists who were trained by him. His organizing ability was demonstrated by the evolution of the largest and best conducted clinic in this country.

In spite of his age, Dr. Fordyce was as professionally active and as thoroughly modern during the last year of his life as at any previous time. He was a cultured man, a gracious host, an inordinate worker, kind, human, tolerant and fair. His clean life, his achievements and his personality caused him to be an inspiration to the younger men. He was loved and respected by his colleagues, friends, contemporaries and subordinates. It was an honor to be associated with him in any capacity. American dermatology has suffered a terrible loss in the death of John Addison Fordyce.

GEORGE MILLER MACKEE

William Burwell Trimble, 80 West 40th Street, New York City; born in Montgomery, Alabama, September 27, 1870; graduated in medicine from New York University in 1891; elected a Fellow of the Academy April 7, 1904; died May 23, 1925. Dr. Trimble was Professor of Dermatology and Syphilology in New York University Medical College; a Fellow of the American Medical Association; member of the American Dermatological Society; member of the New York Dermatological Society; and Director of Dermatology and Syphilology of Bellevue Hospital.

Henry Morton Pierson, Roselle, New Jersey; born in Roselle, N. J., December 30, 1878; graduated in medicine from the College of Physicians and Surgeons, Columbia University, New York, in 1903; elected a Fellow of the Academy March 2, 1911; died May 6, 1925.

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